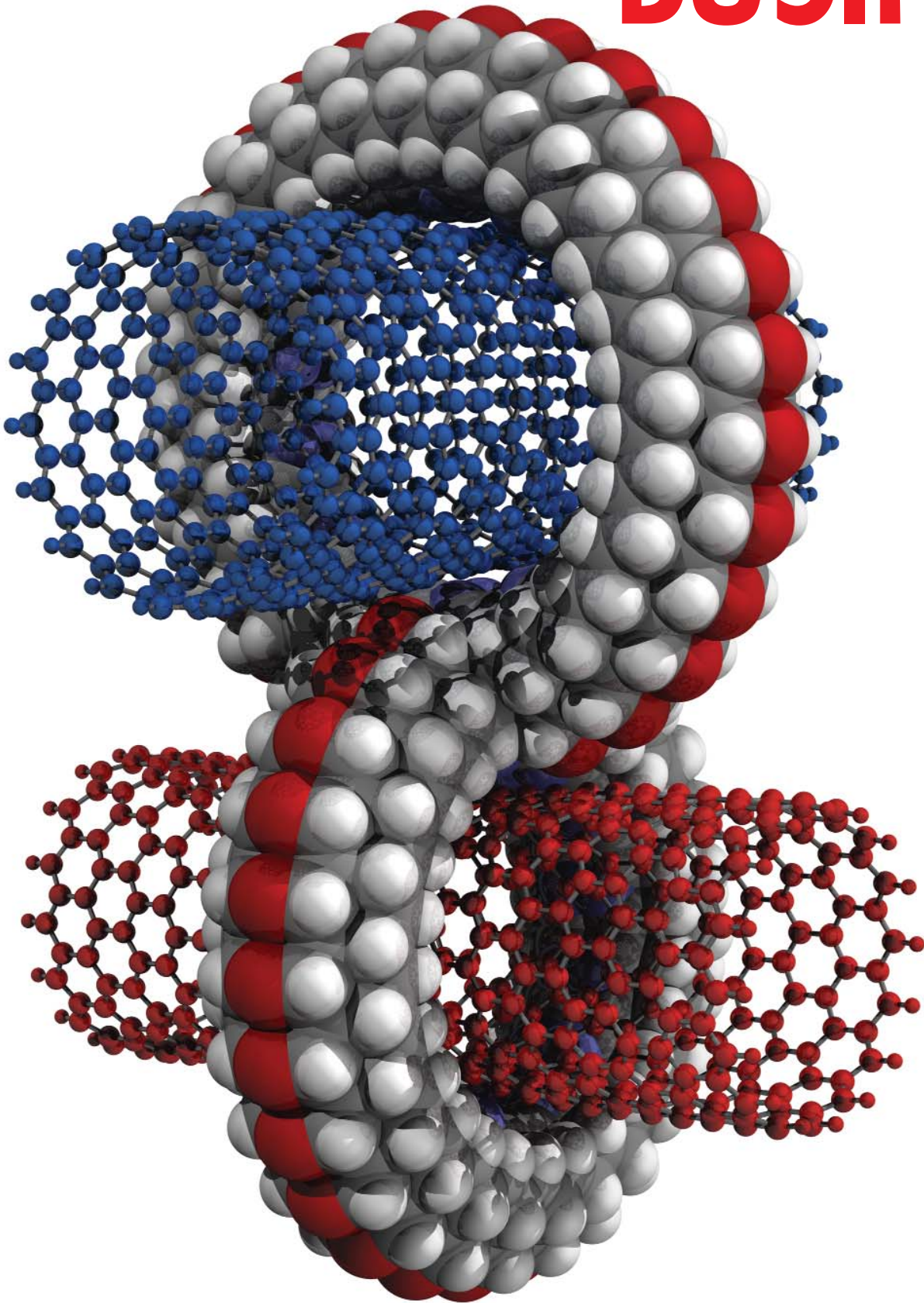


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**MIDDLE
TENNESSEE**
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A growing economic concern for both the U.S. and Tennessee is the loss of manufacturing jobs. Robert Reich, former Secretary of Labor under President Clinton, has some interesting observations on the causes and economic impact (*Wall Street Journal*, December 26, 2003). He challenges a popular belief that the U.S. is losing manufacturing jobs primarily because foreigners are taking them. He notes that, in reality, factory jobs are diminishing worldwide. While the U.S. lost about 11 percent of manufacturing jobs between 1995 and 2002, Japan lost 16 percent, Brazil lost 20 percent, and China lost 15 percent. Higher productivity is the real culprit. Because of enormous technological advances, fewer people are producing more.

According to Reich, manufacturing is following the same trend as agriculture. When productivity rises, employment falls as fewer people are needed. Despite manufacturing jobs dropping worldwide since 1995, industrial output has grown more than 30 percent. Reich blames new knowledge that created electronic gadgets and software to do almost any routine task. Not only have factories been affected but there are fewer elevator operators, telephone operators, bank tellers, and service-station attendants. With digitization and high-speed data networks, many U.S. companies have outsourced customer service and paperwork to workers in India, China, and the Philippines. In short, the U.S. will have fewer routine jobs.

Reich contends the problem isn't the number of jobs but their quality. He sees two growing work categories. First is the analytical job category—including research and development, design and engineering, high-level sales, writers and producers, doctors and lawyers, bankers and financiers, journalists, and management consultants—which is getting better pay and benefits. The second growing job category is personal services, including nurses and medical technicians, restaurant and retail workers, security guards, and hospital attendants. The pay for many in this category is not improving because the supply of workers is growing quickly due to former factory and routine service workers joining their ranks. Reich concludes the gap in income between these categories is widening and the long-term solution is to better educate more Americans to assume the better-paying jobs.

Last fall at the governor's Manufacturing Summit, University of Tennessee economist Matt Murray reviewed manufacturing in the state. He noted that after World War II manufacturing was the most important element in Tennessee's economic base, with above-average wages and greater likelihood of providing fringe benefits like health insurance. Since 1995 Tennessee has lost more than 100,000 manufacturing jobs, but nonetheless productivity has increased. Manufacturing accounted for 22 percent of all nonagricultural jobs in Tennessee in 1990 but fell to just over 15 percent in 2005. The trend toward fewer factories and jobs is alarming when about a fourth of Tennessee's counties still rely on manufacturing for more than 40 percent of jobs, mainly in rural counties. While the urban areas are seeing good economic growth in service jobs, much of rural Tennessee is seeing a declining economic base.

Murray, like Reich, insists our education system must improve to reverse a poorly skilled workforce.

—Horace Johns, editor

EDITOR'S NOTE

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The Russell Chair of Manufacturing Excellence at MTSU hosted the Manufacturing Excellence Conference March 16, 2006. The articles in this issue by Richard W. Oliver and Ed Sperling, Charles H. Perry, and David Smith and C. A. Skelley are from presentations given at this conference.

The articles by Kristin Stehouwer and Matt Murray are from the Manufacturing Summit hosted November 8, 2005, by the Tennessee Department of Economic and Community Development, the Tennessee Chamber of Commerce and Industry, and the University of Tennessee Center for Industrial Services.

On the cover: Junctions based on molecular diamond may someday be used to hold carbon nanotubes in place, providing a means for generating nanoscale scaffolding or electronic circuits in molecular computers.

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